ABSTRACT OF THE DISCLOSURE

A system and method of automatically calibrating a water distribution model is provided that allows a user to design a calibration model by selecting several input parameters desired to be used for the calibration. For example, several parameters may be chosen including the pipe roughness coefficient, junction demand, and pipe and valve operational status. Trial solutions of the model calibration are generated by a genetic algorithm program. A hydraulic network solver program then simulates each trial solution. A calibration module runs a calibration evaluation program to evaluate how closely the model simulation is to the observed data. In doing so, the calibration evaluation program computes a "goodness-of-fit" value, which is the discrepancy between the observed data and the model data, for each solution. This goodness of fit value is then assigned as the "fitness" for that solution in the genetic algorithm program. The fitness measure is taken into account when performing the genetic operations to find the improved survivors, in this case, the optimal calibration solutions.